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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of

Applicants : Hertzman, Mikael

Serial No. :

Filed :

Title : **A SURVEYING INSTRUMENT WITH COMPENSATION
FOR MECHANICAL ERRORS**

Docket : SPF 0009 PA (41105.30)

MAIL STOP P C T

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

PRELIMINARY AMENDMENT

Amendments to the Claims

1. (Currently Amended) A method of operating a surveying instrument (~~10~~) placed in a orthogonal XYZ-system at (0,0,0) having a movable unit (~~20~~), said instrument defining a sight line (~~128~~) that is controllably rotatable around a first axis (~~50~~), essentially horizontal, and around a second axis (~~90~~), essentially vertical, wherein said second axis (~~90~~) may be inaccurately positioned so that it deviates from a true vertical axis, and said first axis (~~50~~) may deviate from being orthogonal to the second axis (~~90~~); the method comprising the steps of determining at least one of the following group of errors relating to the instrument and/or its location:

- a) a trunnion axis error T as a function of the deviation from 90 degrees between the first axis (~~50~~) and the second axis;
- b) a horizontal collimation error C_H, being the deviation between the sight line (~~128~~) and the perpendicular angle as related to the first axis (~~50~~); and